

ABSTRACT

An add-filter device includes a plurality of ring resonators that are arranged to receive an optical signal of a specific wavelength and channel to be added onto a bus line that is arranged to receive a plurality of signals. At least one Mach-Zehnder
5 Interferometer (MZI) structures embedded in the plurality of ring resonators. The at least one MZI structure and ring resonators provide the necessary modulation and filtering so that the optical signal can be added to the bus line without affecting the channels contained in the bus line.